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C R I T I C A L
I N T R O D U C T I O N

T O T H E

S T U D Y O F F E V E R S .

READ AT THE COLLEGE OF PHYSICIANS,
FOR THE GULSTONIAN LECTURES.

By FRANCIS RIOLLAY, M.D.

FELLOW OF THE COLLEGE.

L O N D O N .

PRINTED FOR T. CADELL, IN THE STRAND.

M D C C L X X X V I I I .



T O

SIR GEORGE BAKER, BART.

PRESIDENT OF THE COLLEGE OF PHYSICIANS,

THESE LECTURES,

UNDERTAKEN AT HIS DESIRE,

ARE WITH GREAT RESPECT

INSCRIBED,

BY HIS SINCERE ADMIRER,

AND VERY HUMBLE SERVANT,

THE AUTHOR.

HART-STREET, BLOOMSBURY,
JUNE 2d, 1788.

E X O R D I U M.

ILLUSTRISSE PRÆSES, SOCII, AUDITORESQUE ORNATISSIMI,

CUM primum annuam Gulstonii dissertationem, ex vestro liberali placito, mihi contigisse denunciatum est, in varia trahebant mentem variæ cogitationes, quarum nonnullas etsi ad prælectoris munus implendum accinctus videar, suum non omnino deposuisse imperium nunc etiam plane sentio. Quid ita me animi dubium effecerit omnes arbitror hujus collegii socios facile conjecturam facere, qui, posthabitâ natali
meâ

meâ regione, in illustrem suum ordinem me ascribere non illepidum duxerunt. Dum enim sermone Latino in hac præfatione utor, non possum non egomet audire unumquodque verbum proprio quodam oris sono pronuntiari, et simul ac ad Anglicum devenerim illum quoque mihi esse peregrinum æque patet fiat necesse est. Quapropter hisce deterritus incommodis hanc honoris occasionem recusare aliquandiu consilium erat: verum etiam cum, ad alia conversus, hujus nobilis instituti finem, necnon in nostræ societatis officiorum functione ordinem assuetum respicerem; simul reputarem plurimorum officiorum me semper esse necessario immunem, penitus otiosum remanere non honestum visum est, et rei experimentum facere decrevi,

decrevi, ne denegatio, hospitem tam liberaliter receptum, aut negligentia, aut rusticitatis, videretur arguere. Loco igitur elegantis dicendi rationis, vel accuratæ in recitatione pronunciationis (quam nemo nisi dum vernaculam loquitur linguam tenere potest) spero vos, Socii, Auditoresque ornatissimi, hanc qualemcunque obtemperationis significationem, necnon desiderii rem medicam pro viribus promovendi, vestrâ assuetâ facilitate et indulgentiâ accepturos.— Qui hanc lectionem instituit, vir eximiae virtutis summæque erga homines benevolentia, id sibi proposuisse videtur, nempe ut medicorum mentem ad utilem quandam exercitationem multò magis quam ad splendidam orationem incitaret. Verborum enim ornatus sæpius ad modum
quàm

quàm ad rem pertinet. Ad majora spectabat Gulstonius cujus propositum de variis febrium theoriis dicendo attingere aggredior, exequi autem posse minime confido.

C R I T I C A L I N T R O D U C T I O N

T O T H E
S T U D Y O F F E V E R S .

L E C T U R E I .

AMONG the various complaints to which it has pleased the Creator of all things to subject Man, fevers are said to be the most frequent. The familiarity of the word, as it has habituated mankind to remain satisfied with the usual consequence of fevers, so it seems to have induced the most inexperienced to think themselves equal to their management: for it is a natural operation of the mind

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to annex little importance to what is very common ; and to transfer to the thing itself, most of the notions entertained about the name. Hence it happens that numbers of self-taught, self-created practitioners go about exercising their trade with the greatest confidence, in the most unconscious state of mind ; whilst physicians lament that the individual nature of fever remains still in obscurity, and is still a matter of doubt.

Fevers have been supposed to constitute two-third parts of the enemies of human life. We have only two ways of estimating the truth of this calculation ; viz. by confining it to those few diseases which, for want of deeper knowledge, we are obliged to call by the most evident symptom, or by generally referring it to the quicker motion of the heart, a circumstance which is found to take place in an infinite variety of disorders. If viewed in the first light, fevers cannot be reckoned so frequent as has been asserted ; if considered in the second, they will perhaps be found to

bear a still greater proportion to our other infirmities, because neither the mind nor the body can be long affected without occasioning that change in the circulation which is generally called *fever*. For want of accurately distributing cases into one or other of these two classes, fevers have been thought, upon a superficial survey, to be the most common and the most dreadful of diseases. It is not perhaps surprising that such an opinion, erroneous as it may be, should have been adopted: the increased velocity of the blood is a circumstance of such magnitude, that it might well engross the attention of physicians. Astonished at its effects on the various functions, at the disturbance it creates in the secretions, and seeing it accompany most of those cases that terminate unsuccessfully, they naturally bent their thoughts on this phenomenon; looked upon it as acting the chief part in our dissolution; and therefore described its various forms under a multiplicity of names, every one of which refers to this alteration in the sanguiferous system. But what we may

rather wonder at, is, the unsettled condition in which this important subject remains to this day : after the many attempts of men of application, observation, and ingenuity, in the course of two thousand years, we are still to wish on this head for an undisputed definition, a satisfactory decision, a clear account of causes, and an established method of cure. In short, the labours of our predecessors in this rugged path have not yet enabled us to tread it without the greatest caution.— As much as is consistent with the limits of these lectures, I propose bringing back to your recollection the chief opinions of the ancients, examining the principal systems of the moderns, and delivering my sentiments on both with that mixt degree of freedom and diffidence, becoming a man whose first object is the improvement of his Art ; but who is not insensible of the honour of speaking before one of the first, and most respectable Societies of Physicians in Europe.

The word by which the Greeks expressed

pressed that alteration in the animal œconomy which we name *fever*, signifies in its literal acceptation *fire*: they were induced to take it from this root, because the most striking effect of this alteration is, in many cases, the burning heat of the body. The Latin name from which the moderns have taken theirs may equally be derived from two words, the first of which implies the same idea with that of the Greeks; the second alludes to a process of Nature, by which the blood undergoes a change that ultimately tends to its purification: this last etymology, though not received by the Spaniards and Italians, who have inherited the greatest share of the Roman language, deserves, however, some attention, as it seems to signify a more profound look into the nature and effects of these obscure commotions. From this circumstance I should apprehend there was some reason to expect an investigation of this subject, upon more enlarged principles than those which at the first onset led physicians to confound the effect with the cause: but Galen,

who thought fit to employ his extensive genius and immense erudition, in supporting, explaining and enforcing the doctrines of Hippocrates, having, like him, adopted *heat* for the essence and cause of fevers; all subsequent writers, during a long course of time, awed by the reputation of the founder of physic, and the merit, powers and learning of his great commentator, looked upon this first point as established and indisputable: hence fevers were regarded as having in their nature something sacred and mysterious, against which human abilities were not able to contend. Recourse was had to the Divinity; temples were erected in Greece to the God, in Rome to the Goddess, *Fever*; to which the masters of the world resorted in great numbers, in sickness and in health, either intreating for relief, or deprecating such a visitation: they placed on her altars the remedies destined for the sick, before they were administered, and did not fail to ascribe their salutary effects to that ceremony; for which reason it mattered not much, I suppose, what was their composition,

fiction. We are not acquainted with the form under which this goddess was represented; but from an inscription found in Transylvania, it appears that her titles were *divine*, *holy*, and *great*. So prevailing has been that propensity of giving to fevers a supernatural origin, that even the purity of the Christian religion has not entirely preserved us from some superstitious taint in that respect; several passages having been adduced out of the Holy Scriptures, to prove that they are an instrument of the divine vengeance. Had these learned men been poets, and taken their quotations out of Homer's Iliad, all would have been well; but they were professional interpreters of the divine law, and therefore we must endeavour to forget their extraordinary stretch of its holy spirit.

Hippocrates having, like his predecessors, admitted *heat* for the substance and cause of *fevers*, naturally enough established his distinction of them on its different degrees of intenseness, and gave to the several species which he observed,

names expressive of its different modifications. It may easily be supposed that a distinction, founded on sensations alone, is not susceptible of much perspicuity. Clearness is not at any time the chief merit of this author ; but on this subject, whether you try to understand him from his descriptions at large, or to fix a precise meaning to his expressions, he is equally difficult and obscure. Most of the passages in that voluminous collection which goes under his name, are equally perplexing ; and it is remarkable that they are, comparatively speaking, but few : there is, however, among his writings, another division which implies a great deal of observation, and must for ever be attended to ; that is, as they arise from a great common source, or from causes peculiar to individuals, most writers have adopted and mentioned it in some way or other.—His practice was, in several respects, derived from his manner of reasoning on the cause ; for in the diagnostic, he used to place his hands on the breast and abdomen of patients, and preferred forming a judgment

ment of the case from his sensations of heat, rather than from the state of the pulse, the nature and connections of which he could not well understand: and among his few modes of cure, he directed pieces of linen dipt in cold water, to be applied on the hottest parts; drew blood away both by the lancet and cupping-glasses, and kept his patients on barley-water and honey; methods evidently derived from the notions he entertained of the disease, and by which he gives an example of connection between theory and practice, seldom admissible in our more elaborate modern systems. The rest he committed to Nature, contenting himself with being her exact observer and faithful historian. The proofs of his assiduity and penetration in that important office, are commonly deduced from his doctrine of critical days (*a*), which, whether grounded on some unaccountable partiality of

(*a*) For the latest discussion of this famous point of medical controversy, the reader may consult *Doctrines of Hippocrates, &c.* p. 102, &c.

Nature for certain uneven periods, or (which is more likely) established on a few fortuitous cases that favoured an ancient opinion, undoubtedly bears incontestable marks of the greatest attention to every circumstance; but, that a fame so well earned may not rest upon a point that is not universally acknowledged, I beg leave to mention, on the authority of Celsus, the truth of his prognostics, as a less dubious sign of his intimate acquaintance with diseases, and especially his discovery that fevers have not always a pernicious tendency; but that, on the contrary, they are often the salutary means of removing many obstinate chronic disorders.

Next to ascertaining the principle of fever was, in point of importance and order, the finding out its principal seat; Galen took that upon himself with the great magnetic needle of his master constantly within sight, analogy led him to fix it in the heart, and from his anatomical knowledge, being acquainted with the superior muscular strength of the left
ventricle,

ventricle, he boldly ventured upon deciding that fever originates in this cavity; he therefore rejected the opinion of Erasistratus and Chrysippus, who thought it was seated in the motion of arteries, and defined it “ an unnatural *beat* of the heart, injurious to its functions, and apt to spread itself, if not prevented, all over the body.” I will not pretend to say that every thing he asserts about fevers is consequent on this definition; though he wrote expressly on their differences, his sentiments are rather diffusively spread all over his works, than brought into one view in any part of them; neither do they appear to be the result of one settled way of thinking; but upon the whole, this is the doctrine he chiefly supports, and so tenacious is he of it, that in several places he maintains there cannot be any fever without the heart being affected. In order to reconcile to this position a number of facts seemingly unfavourable, and even contrary to it, he allows that other parts of the system may at first prove the cause and origin of heat; but that the heart is
soon

soon affected in consequence of these partial complaints. He goes still further; for he refuses the name of fever to that *heat* which arises from an affection of the liver, spleen, lungs, &c. not that, as might be supposed, he alludes to the distinction of *essential* and *symptomatic* fevers; but because, according to his own words, the degree of heat excited by the inflammation of these viscera is much less considerable than that which has its source in the heart, which is, in his opinion, the most inflammable viscus, not even excepting the brains, and the most apt to communicate its inflammation to the other parts of the body. In several other parts of his writings, he mentions the great practical division of fevers into essential and symptomatic as a doctrine long established, and says, that the ancients confined the name of *fever* to that universal heat which takes place without any particular inflammation, abscess, or eruption. As to those patients who labour under an inflammation of the side or lungs, or any other part, they were not said (he tells us) to have a fever,

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but to be *pleuritic, peripneumonic, &c.*
 In the first place, fever was considered as the illness ; in the second, as accidental. Unwilling to omit any opportunity of mentioning Hippocrates to advantage, he informs us, that whenever this author makes use of the expression *feverish disorder*, we are to understand *essential* fever, and not the symptomatic sort ; — upon which it may be observed, that in this interpretation Galen is more commendable for the desire of honouring the memory of his master, than for the likelihood of his conjecture ; for after putting the most favourable, and even partial construction on the few expressions that might be thought to refer to so material a distinction, there is no reason to suppose that he was acquainted with it. This must have been found out by some adherents to those different sects, that, during a period of six centuries, established themselves in support of, or in opposition to, his principles ; and, of whose writings we have no other knowledge than by the
 slight

slight mention of Celsus, or the few fragments preserved in Galen's works.

A man endowed, like Galen, with great powers for invention and reasoning, could not content himself with barely asserting that the *heat* of the heart constitutes fever; he, therefore, laboured to conceive and explain the manner in which such a change happened; but as it would be trespassing on the indulgence of this society to enter at large into so speculative and so useless a discussion, I shall confine myself to the result of his inferences; by which it appears, that he understood two modes of generation for this morbid heat; the first, when the innate heat, from some cause or other, acquires that degree of intenseness which he calls *igneal*; the second, when, by the admixture of *putrid* substances, the heart grows inflamed. Thus, without departing from his definition, he admitted the ancient axiom, "that all fevers arise from putridity," into some share of action. Amidst this cloud of fanciful thoughts, strange reasonings, and obscure expres-

expressions, one might, without any great stretch, discern the foundation of our mostly-received modern division of fevers into *inflammatory* and *nervous*; not that I mean to hint, that this opinion of the moderns has been formed on the authority of Galen, nor that they have been in the least led to it in consequence of his writings, but only to observe, as a fact rather remarkable, that by paths so very distant from one another, and by a train of reasoning so widely different, the eccentric speculations of the one, and the accurate observations of the others, have brought them both to nearly the same conclusion. As an admirer of antiquity, I might be tempted to leave Galen in the advantageous point of view in which this accidental comparison has placed him; but the prosecution of the plan I have traced, and to which these lectures are an introduction, requires that I should mention the three genera of fevers he established, viz. the *ephemera*, *humoral*, and *hectic*, with his manner of accounting for their different characters, because

cause most of the fevers that have been described since his time, are in a great measure connected with these, and most of the opinions that prevail, even in these days, concerning their seats, are reducible to those he assigns. Without having expressly said it, there can be no doubt but he considered the animal economy as composed of three principal parts, which he names *spirits*, *humours*, and *solids*. The inflammation of the spirits alone he conceived to be the cause of an *ephemera*; if the *humours* caught the flame, he called it an *humoral fever*; and if the *solids* themselves did not escape the conflagration, then the fever was reckoned to be in the habit, that is to say, *hectic*, which signifies *habitual*. This fragment of theory may appear, in our present state of knowledge, extremely insignificant and uninteresting; but those physicians who, having spent a considerable part of their time in studying the medical classics, are glad to find some gleanings in that immense field as a compensation for their labour, will, I hope, join me in remarking, that if

Galen

Galen went out of his depth, and lost himself in endeavouring to explain the different periods and protraction of fevers from so vague a supposition, there is, notwithstanding, a fund of thoughts and reflections in considering the human machine according to his idea, and in admitting, as he did, that every one of these constituent parts may be the cause of fever; nor is it any great detraction from his merit, that what he meant by *spirits*, is not, perhaps, to be explained from his own words, in a manner consonant to our notions, since it is evident, that when he separated it from *humours* and *solids*, he must have had in view something of a different nature, and consequently, at least most probably, analogous to that unknown agent which we call the *nervous fluid*.

By considering these fevers as simple and complicate, that is to say, as they arise from the alteration of one or several sorts of fluids, he established several species, especially of the putrid kind; such as his *malignant* fever, in which he sup-

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posed

posed the heart to be not only inflamed, but also oppressed by a venomous infection. But it is sufficient to have related his fundamental principles. What is most remarkable in the rest of his observations, is his division of the hectic fever into essential and symptomatic. The first made part of a system which he never had the resolution to correct; the second was the result of experience, which he had too much sense and penetration to misinterpret or overlook.

Concerning intermittents, he deviated a good deal in his manner of accounting for them from his theory of continued fevers. The ancient notion, that all fevers arise from putridity, which, in deference to Hippocrates, he rejected, at least partially, seems, in the contemplation of intermittents, to have had much influence on his mind, and, perhaps, to have given rise to his doctrine of the four *peccant humours*. He imagined that the *blood*, *phlegm*, *yellow* and *black bile*, are liable to fall into a putrescent state, and to be the causes of reciprocal diseases, which, communicating

to the heart their noxious impregnations, occasion fevers of different types. To putrescent phlegm he assigned the origin of *quotidians*, to yellow bile that of *tertians*, and to black bile he attributed the rise of *quartans*. All other intermittents of longer intervals he refused to admit, though acknowledged by Hippocrates. Which remarkable instance of exception to his general rule of conduct being not explained by himself, must be attributed to the difficulty he found in explaining paroxysms of so distant a recurrence, according to the number of fluids he reckoned susceptible of putridity. The most material difference between his practice and that of his master, is the boldness with which he bled his patients: he sometimes suffered them to faint away from the loss of blood before he would stop; which made a bystander observe once, that he had *slaughtered the fever*. From this circumstance it may be inferred, that though he has commented a good deal on the critical days of Hippocrates, his faith in them cannot have

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been

been implicit, since he was not afraid of disturbing their natural course: neither is he likely to have looked on fevers with that deep penetrating eye which discovered in them a salutary effect, since he generally tried to extinguish them at first.

I cannot take leave of Galen without expressing my opinion, that had he been less ambitious of dazzling his contemporaries by the multiplicity of his productions, or rather, had he not been tormented (if I may say so) by an over-fruitful imagination, which gave him no respite, no time for mature reflection, he would have proved as useful to the Art as, notwithstanding all his errors and dreams, he is still wonderful.

Such was the state of knowledge, or rather of opinions, concerning the nature of fevers, to the days of the Arabs, who, as it is well known, lighted their taper at the torch of the Greeks:—their adopted doctrines they delivered for their own, and, on that foundation, erected a
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superstructure, which lasted but a short time. Avicenna, the chief of their writers went farther than Galen in the same theory; for he maintained that all fevers arise from a preternatural heat of the heart; whereas Galen had confined that origin to essential fevers of the continued type. He established also several distinctions of his own, some of which, as those into acute or not, long or short, have been the prolific text of many a long dissertation, without having their limits ascertained, or throwing any light on practice; others are insignificant and useless, as that into diurnal and nocturnal; and several have no foundation in nature, as that continued species, which, from beginning to end, constantly increases, or constantly lessens, or always remains in the same state. Upon the whole, though physic at large is, in many respects, under obligations to the writers of that nation, one may say, without injustice, that the doctrine of fevers received from them no improvement, or even alteration, worth recording; and as

the great numbers of physicians who wrote from the thirteenth to the sixteenth century employed themselves in commenting their books, composing on the same principles, or in tracing up to the Greek fountain the stream of their knowledge, it follows, that in order to consider this subject in a different and more propitious light, we must come to the days of the great Sydenham,

LECTURE II.

MANY ages were elapsed since men had begun to employ their mental faculties on the two great objects of their pursuits—enjoyment in health, and relief in sickness; many sciences and arts had arrived at a great degree of eminence; the world, in many respects, looked old, and medicine was still in its infancy. From her tardy steps, it would seem as if the desire of improving our earthly possessions was greater than the wish of extending them; or that the time of illness, constituting generally but a small proportion of life, and this being necessarily limited to a certain period, the acquisition of an art so moderate in its promises, and so uncertain in its effects, formed but a secondary subject of consideration. To this manner of accounting for the slow progress of so noble a science, it may be objected, that the great number of writers it has produced is a sufficient testimony that its

want of success cannot be ascribed to the want of cultivation.—I allow the strength of that argument; still, however, may it remain a question, whether the profession of physic being held by the bulk of mankind in an inferior degree of esteem, the greatest abilities were not directed towards more attractive views, and this useful branch of knowledge suffered to be the lot of less elevated minds? I am inclined to this way of thinking, by observing in its history the most unequal features, in its improvements nothing gradual, and, in its present state, evident marks that its valuable acquisitions are much less the work of time than the gifts of a few men of genius. Among them none is more conspicuous than the English Hippocrates, the great Sydenham:—this accomplished practitioner, though well acquainted with the valuable part of ancient learning, though reverencing its authors (as becomes every classical student to do), never followed the flock of their admirers in their blind imitations;—like a good translator, who, regardless of the literal meaning of words,

infuses

infuses into the mind the spirit of his author ; he looked up to nature as to the great original from which the Greeks endeavoured to copy. Without arraiging them of infidelity, he thought proper to see with his own eyes ; and, having brought his mind into this pliable frame, he began the practical study of diseases with a disposition that left him the full exercise of his reason and understanding. Less desirous of acquiring a transitory fame by the display of great erudition, than eager to pry into the secret operations of nature, he observed her with a free disengaged mind, saw deeper than his predecessors into many causes of her distress and struggle, succeeded better in his modes of assistance, and proved to his successors an useful and safe guide ; for this reason particularly, that, as on all occasions he appealed to his judgment, and thought for himself, he induces every physician to do the same. How much the practice in general is indebted to him, all medical men know, and I am ready to subscribe ; but if, in mentioning his theories and notions
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of fevers, which are the immediate subject of my inquiry, I should venture to make a few strictures, I shall hope for a share of that indulgence which his writings taught me to expect, and to grant, in every liberal investigation.

Sydenham divided fevers chiefly into epidemic and intercurrent; as they attack great numbers of people, or seem to single out a few individuals: a distinction similar to that of Hippocrates. The first he supposes to have so many, and so essential differences, that as the common course of life is not, in his opinion, sufficient to observe them, so the knowledge of the most experienced practitioner cannot enable him to treat them successfully, till, instructed by mistakes, he has discovered their genuine character. Having remarked that epidemics sometimes preserve the same type for some years, he called these *stationary*, to distinguish them from the intercurrents, or sporadic, which, though generally mixed with all kinds of fevers, and spreading less extensively, sometimes,

however,

however, prove also epidemic. These are, in his own words, “ the scarlet fever, pleurisy, bastard peripneumony, rheumatism, erysipelatous fever, the quinsy, and, perhaps, some others.” Contrary to the notions of the ancients, who confined the name of fever to those diseases in which there is no particular affection, he looked upon the fever that accompanies these complaints as the primary disease, and on the symptoms from which they generally derive their names, as the consequence of either the peculiar manner of the crisis, or of the part principally affected. The causes of epidemics he attributed to the air, those of the intercurrents to peculiar dispositions. But having found, after carefully watching the constitution of the atmosphere for several years, no connection between its manifest qualities and the genius of diseases; on the contrary, having repeatedly experienced that years, perfectly similar as to the manifest temperature, gave, nevertheless, rise to very different complaints, and *vice versa*; he was induced to adopt the extraordinary opinion,

opinion, that there are constitutions or states of the air of great influence on health, that owe their origin neither to heat, cold, dryness, nor moisture ; but rather depend upon a certain secret, and inexplicable alteration in the bowels of the earth, whence spring such kinds of effluvia as subject the human body to particular distempers, so long as that constitution prevails, which, after a certain course of years, declines, and gives way to another ; and that each of these general constitutions is attended with its own proper and peculiar kind of fever, which never appears in any other. As to the evident and sensible qualities, he allows they may have some share in producing these intercurrent fevers which appear in every constitution of the atmosphere, or even may dispose the body to receive the influence of the reigning epidemic ; but absolutely denies them the power of producing the epidemics themselves. The nature of intercurrents he reckons subordinate to that of epidemics, in as much as the first frequently participate of the character

character of the last ; and when that is the case, they are no longer (he says) to be considered nor treated in the manner of essential diseases, but according to the method which the prevailing fever requires. In order to distinguish between these two states, he informs us, that it is of moment to consider, whether the same symptoms which accompany the beginning of the prevailing stationary fever take place likewise at the same stage of the intercurrent—This circumstance being the guide we are to follow in practice.—Whereas, when the intercurrent is the essential disease, it attacks in the same manner at all times, having nothing at all in common with the stationary.—This is the summary of the clearest and most considerable part of his doctrines concerning fevers : a doctrine peculiar to himself, extremely specious from his manner of establishing it, and the more attractive, because the author constantly professed himself an enemy to speculations. That he was not so in reality, his works abundantly prove ; and from them
also

also may be derived several objections to the texture of his system. For example, his division of some epidemics, as intermittent fevers, into vernal and autumnal, with constant marks of greater benignity in the first, does not much favour the cause of occult qualities in the air; neither does the appearance of bilious and dysenteric complaints, so frequent in autumn, induce one to believe that the sensible temperature acts no part in these disorders. For, in the first place, the increase of heat in the atmosphere, though gradual, and almost imperceptible, by which the animal fluids are rarefied, and their vessels expanded, will, upon common philosophical principles, account for many revolutions in the human economy. In the second, the chills of autumnal evenings, after a warm day, and the exercise it has invited us to take, must appear an adequate cause to the various disorders that arise from a checked perspiration: moreover, the influence of cold succeeding heat, being in itself greater than that of heat succeeding cold, with the consideration,

sideration, that in one case the effect is always sudden, whereas in the other it is generally gradual, must enable us to conceive, why the diseases of the spring, unless suddenly fatal, as it happens sometimes, are more easily cured, and why those of the autumn are more deeply rooted.

His distinction of regular and irregular epidemics is another obstacle to the admission of his theory; for how can it be conceived, that a hidden alteration in the air, sufficiently powerful to affect, at the same time, a multitude of people, should have “no one fixed form or constant appearance,” but occasion a variety of symptoms dissimilar in their rise as in their retreat? If the cause is one and the same, how can the effects be many and different? If the effects are various and opposite, how can they be ascribed to the same cause?—Should it be said, that different organization may give to one morbid principle different appearances, it will be answered, that Sydenham refuses to particular dis-
positions

positions any share of power, either in producing or even modifying the great prevailing cause of epidemics.—If we give our attention to his remark, that many epidemic fevers appear in the same year, but that one or another rules over the rest, and that in the same proportion the reigning one increases, the others lose ground; we shall find ourselves equally at a loss to imagine, how a particular occult quality in the air can be productive of various disorders, which, being divided between one imperious and several subservient sorts, are in a perpetual state of warfare about the superiority. But not to dwell any longer on this part of the argument, as derived from his own principles and statement of things, which defeat themselves, and cannot stand the test of mutual comparison; let us examine its original source, viz. the qualities of the air.—What reasons have we to suppose, that these qualities are occult, and derive a noxious power from secret revolutions in the bowels of the earth? or how can it be understood, that revolutions

lutions of this kind may take place? The only phænomena from which it appears probable to draw such a supposition, are earthquakes and volcanoes; both of which most likely depend on the same cause, and are momentary convulsions equally unconnected, from experience as well as from reasoning, with internal diseases: for we do not find that the inhabitants of those parts of the globe which are, from time to time, liable to such a visitation, insert among their misfortunes the rise of any peculiar fever. But if it should be supposed, that the seeds of illness with which the air is impregnated in those conjunctures are prevented exerting their power on the spot, being carried away and spread according to the direction of the wind; it may be answered, that such a supposition is contrary to the knowledge we have lately obtained on that subject. From repeated experiments, there can be no doubt but that the air acquires by distance, or even by time, the power of freeing itself from heterogeneous admixtures; and that, consequently, the mor-

bid particles with which it may happen to be corrupted, neither can remain for a long while in an active state, nor spread extensively. Besides other reasons for this assertion, it may be sufficient to mention, that Dr. Priestley, to whom this interesting branch of natural philosophy is so much indebted, observed, that the most unwholesome kinds of air sent him from different manufacturing towns and workshops, had, by some means or other, brought themselves, during the journey, very near the common standard. If that is the case, when it is pent up, a much shorter time must effectuate its purification when it has a free communication with the general mass.—It has been imagined, that the velocity of the earth, in its double motion, may be the cause of great internal revolutions; but since this velocity, immense as it is, never varies, it may, with greater reason, be considered as destitute of influence in this respect.—As to the alterations which the earth receives on its surface from the different works and undertakings of man, these

these seldom are so considerable as to affect the air in any degree, and never so sudden as to produce any great and immediate change. The earth may, therefore, be said to be in a passive state, and to derive, from the various influence of the sun, those differences in her atmosphere, which render it, at times, pleasant and wholesome, at others, comfortless and unhealthy. Upon the whole, there is no manner of necessity to suppose occult qualities : the manifest ones, variously combined with the different dispositions of bodies, and other circumstances, are fully sufficient to account for all the fevers in which air is concerned. Indeed Sydenham seems to have thought so himself, when, losing sight of his system for a moment, he delivers it as his opinion, that most fevers are occasioned by *cold* ; that more lives have been lost by its effects than by the plague, sword and famine together ; and that both *stationaries* and *intercurrents* are frequently caused by its action ;—upon which, forgetting his original idea, that fevers are infinite in their

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varieties,

varieties, he concludes by saying, that whoever knows how to expel the febrile matter, either by bleeding, sweating, purging, or any other more proper way, must have the best success in the cure of all fevers.— But Sydenham was an experienced practitioner when he said this; whereas he was young when he formed his notions concerning the causes of fevers, and when he wrote the History of the First Four Years Epidemics; an history greatly inferior in every essential point to the others, but which, for want of leisure and health, he never had resolution to revise and correct. Subsequent writers, less attentive to the result of his vast experience and knowledge, than seduced by the speciousness of his theories, adopted the idea that fevers, being of a vast number, the best method of acquiring a thorough knowledge of them, is to describe their varieties in the manner that botanists do plants. This thought, coeval in Sydenham's mind with that of mysterious revolutions in the interior parts of the earth being the inexhaustible source of fevers, ought to have been

been given up with the supposition from which it sprung; but having in itself something attractive, especially for a botanist, has proved the cause of multiplying the names of fevers to such a degree, that *memory* seems to be more concerned than *judgment*, in the practical part of this new system.

The first who undertook to give it a shape, was the illustrious *Sauvages*, a man as much qualified as it is possible to conceive, in point of erudition and indefatigable industry, to do honour to his author's speculation. He began by considering from what circumstances the characters of diseases were to be ascertained, and having, with great reason, resolved to take them from symptoms, rather than from causes, which are oftentimes uncertain and obscure, he proposed ascertaining their species according to symptomatic differences: however, either unmindful of his original plan, or finding too great a similarity in symptoms, to supply him with so many species as he fancied he should describe

in imitation of *botanists*, he mentions in the very title of his species, the cause from which they are supposed, according to his opinion, or that of others, to arise: hence it happens, that instead of writing an history of the different kinds of fevers, as distinguished by manifest signs, he has in fact written an elaborate account of causes, to every one of which is subjoined a description of feverish symptoms, so far from being peculiar to any one, that they seem applicable to all: and as the number of causes from which fevers may be occasioned, or with which they may be connected, is not inconsiderable in itself, much less so still, if reckoned on the authority of every writer, as Sauvages thought himself obliged to do, it follows that in perusing his work, the memory is oppressed with the number of species; the judgment misguided with the difficulty of understanding imagined distinctions; and the mind dejected at the sight of so many enemies to human life: for example, the *ephemera*, considered by all writers as the simplest fever, has no less than eleven species

species in his nosology; and these being collected from several authors, most of whom would give them names of their own, simplicity is soon out of the question. Besides, contrary to the etymology of the word, he extends its duration to three or four days, so that it is no easy matter to distinguish it from the *synocha*. Fortunately the distinction is not here very material, as the genius of both is allowed to be much the same; but when you come to the *synochus*, of which he mentions no less than *fourteen* forts, the names by which they have been specified often imply a total diversity of character: and under that load of difficulties and contradictions, the student, after many hours of application, is at a loss to recollect what genus of fever he sat down to read.

Many learned physicians who, in the course of their education, have thought it their duty to make themselves acquainted with every system, but who, after deliberately weighing the *matter* and the *manner* in the scale of experience, judged it necessary to make the former the constant subject

of their observation, and leave the latter to itself, would perhaps feel some surprise upon recollecting that the celebrated writer, on whose system I take the liberty of expressing my opinion, after establishing twelve genera of fevers, has described no less than three hundred and two species.—At the same time that I deliver these objections with freedom, I think it necessary to observe, that nothing can be farther from my intention, than to reflect on the general merits of this laborious performance, which contains a treasure of medical information, and will always remain, notwithstanding its great defect, as a systematic work, a vast repository of fine observations, great views, and useful knowledge.

The transition from Sydenham to Sauvages, being the most natural in point of connection, has induced me to neglect the order of time, in respect to Boerhaave, whose system of fevers is followed to this day in several parts of Europe, though not in Great Britain. This illustrious physician, possessed of the richest store of medical

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knowledge,

knowledge, eminently skilled in the various branches of his art, equally conversant with ancient and modern opinions, did not think fit to pursue the line marked out by Sydenham : he contented himself with expressing his approbation, in general terms, as a tribute which was due from every body to the speculations of a man by whose sagacity practice had received so many improvements, and mankind so much benefit ; but never attempted to give a form to his ideal conceptions of mathematical accuracy. So far from perceiving that analogy between accidental and changeable qualities, and regular manifest organizations, which made Sydenham assert that *a quartan fever is as much a species, as a plant*, he endeavoured, by considering fevers as divested of that infinite number of symptoms which often accompany them, but without which they may also exist, to investigate their individual nature : with that view, in imitation of *Fernelius*, he examined, described, and explained every general symptom by itself ; and having thus proceeded towards his

his object, he surveyed it in a clearer and purer light. Among its numerous retinue, he discerned three principal circumstances, which he supposes always to take place, at one time or other, in every fever that arises from internal causes ; viz. a shivering sensation, increased velocity in the pulse, and greater heat than natural ; but the velocity of the pulse being the only one of the three that from the beginning to the end never disappears, he looked upon it as the only certain sign of the existence of *fever*, and concluded that it is the only mark from which physicians ought to form their rule of practice. As to *heat*, he thought it an effect, and not a cause, having observed that, instead of occasioning these emotions, it follows them. The proximate cause of increased velocity in the blood he assigned to the quicker contractions of the heart, which, for the greatest part of his life, he supposed to be owing only to the stagnation of fluids in the extreme vessels at the time of the cold fit ; but afterwards admitted might possibly take place from the agency
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of the nervous fluid. Thus it appears, that if he did not, like *Erasistratus*, fix the seat of fevers in the increased motion of the arteries, he considered that circumstance as the only criterion of its existence; and, like *Fernelius*, from whom perhaps he had taken the idea, looked upon *lentos* in the fluids as the proximate cause of that increased resistance in the *capillaries*, to which he attributed the three great leading symptoms of all internal fevers. This way of proceeding was not likely to be productive of many species: in fact, he reduced those he found established to a much smaller number. — His system, supported by the clear energetic manner in which he explained it in his lectures; by his unbounded reputation as a practitioner; and, afterwards, by the immortal commentaries of his great pupil, became the universal theme of every school in Europe.

There was, however, a cotemporary of his, not less distinguished than himself by great medical acquisitions, who endeavoured

deavoured to point out a different source of fevers in a principle of the constitution till that time very much overlooked. Whether, unsatisfied with former theories, his own genius led him to seek deeper into the operations of nature; or, despairing to cultivate the same ground with greater success than his predecessors, he caught the few hints thrown out on this subject by some anterior writers as likely to form the basis of a new system; certain it is, that we are indebted to *Hoffman* for opening a new mine of experiments and inquiries.

If the celebrity of *Boerhaave* retarded the progress of his rival's doctrine, and by fixing the attention of physicians on obstructed capillary vessels, prevented their early researches into the powers of the nervous fluid as a cause of fever, the subsequent labours of many writers, and the application of their discoveries to the system of *Hoffman*, have made him ample compensation for that temporary neglect.

Hippocrates had said, that besides the
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containing and *contained* parts, there is an *impetuous power*, τα ορμωντα, which ought to be the subject of contemplation; Galen had referred a species of fever to something unknown, which he called *spirits*; *Willis* had written the pathology of nerves; *Hoffman*, with these few materials, attempted an history, which gave rise to the ingenious experiments of *Haller* on irritability and sensibility, as well as to the improvements of *Gaubius* on the theory of *Boerhaave*. The celebrated Professor of North Britain collected these scattered fragments, and made them the foundation of his doctrines, in lieu of those of *Boerhaave*, which, as he informs us himself, were reigning in full force at the time he began to teach phyfic at Edinburgh. Under the influence of his patronage, and of his uncommon abilities, it has acquired an almost universal prevalence, with an apparent degree of consistency, and of extensive application to the different phænomena of fevers, which it never received from its original author. Having altered the position laid down by *Boerhaave*,

have, that in every fever there are three principal circumstances, shivering, velocity of pulse, and heat; into one, no less liable to exceptions, viz. that every fever has a state of debility, of cold, and of heat: he asserted, in addition to that maxim, that every fever, of more than one day's duration, consists of separate, and, in some measure, repeated paroxysms: in opposition to many writers, he confined the length of each paroxysm, in its most extended form, to less than twenty-four hours, in consequence of a supposed subjection of the animal œconomy, in all its operations, to a diurnal revolution. For the cause of paroxysms, he assigned the spasm of the small arteries, with a proportionable effort in the constitution to remove it; derived from the different degrees of violence in the spasm, the reason of intermittent, remittent, and continued forms of fevers; maintaining with Sydenham, that sometimes fevers of a very continued type belong to the class of intermittents; whilst others, with separate and repeated paroxysms, are of the continued sort: and
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looked upon this spasm as the effect of some noxious power applied to the body, which he supposes to arise either from *human* or *marsh effluvia*, both of which he reckons of a debilitating or sedative quality, and originating from putrescent matter; from which it follows that this train of suppositions and facts, notwithstanding his disregard for ancient authority, brings us back to the theory anterior to Galen, *that all fevers come from putridity*. These are the principal outlines of Dr. Cullen's system of fevers; not less remarkable for the ingenuity with which he renders it plausible, in his manner of unfolding its principles, and applying it to the different forms of fevers, than for its effects on the mind of its celebrated author; who, from a degree of partiality, greater than paternal, for this adopted child, has been induced to think it equal in mischievous power to *Pandora's box*, has, therefore, acquitted morbid matter, plethora, cacochymy, even *cold*, in a great measure, from the share of guilt

guilt with which they had long been accused; and expresses his concern that Hoffman should have intermixed suspicions of this sort, after having once got a glimpse of this great fountain of evil.

LECTURE III.

WHOEVER reflects on the different manner in which it has been attempted to explain the nature and causes of fevers; on the ingenuity with which almost every system is made to appear probable at first, though easily found insufficient afterwards; must find it extremely surprising, that, notwithstanding the vigorous efforts of the several writers that have been mentioned, so great and so many difficulties should still remain unfurmounted. It is not yet decided, whether the seat of fevers lies in the *heart*, according to *Galen*; in the *brain*, as *Morton* will have it; in the *mesentery*, if you believe *Baglivius*; in the *pancreas*, according to *Sylvius*; in the small *ramifications* of arteries, as many moderns suppose; or in the *stomach*, as a considerable number of practitioners are inclined to think: neither is it ascertained, whether the causes of them are *infinite* and *obscure*, as it pleas-

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ed Sydenham to fancy ; or *evident* and *few*, according to some modern notions. With regard to their different forms, we are so far from having determined their respective limits, that the names of *intermittent*, *remittent*, and *continued*, are often taken for one another, and every one of them often given to the same fever, by different writers. For example, that species which many authors have called *continent*, from observing, in its whole course, no mark of remission, or of exacerbation, is said, in the latest nosology, to consist of separate and repeated paroxysms, to resemble much an *intermittent* ; but, in reality, to belong to the class of *continued*. Thus the very types of fevers, generally thought so material a circumstance, on which so great a stress is laid in every systematic arrangement, are found so very uncertain, that one species appears to deserve a greater number of them than our late nosologist thinks proper to admit ; for he rejects the continent sort. If we inquire into the subdivisions of the respective classes, we shall find the same contra-

riety of sentiments : in the intermittent, for example, the *quotidian* is rejected by some, and the *double tertian* substituted in its place; whereas, others not only admit the *quotidian*, but also a *double quotidian*, a *double* and *triple quartan*, and a *semi-tertian*; which last, though supposed to have three species by some writers, is denied to exist at all by some others. Paroxysms of a longer interval, of five, six, seven days, a month, even a year, though generally looked upon as anomalous, are not, however, without advocates for reckoning them regular species. *Malignant* fevers, the very mention of which excites fear, and which make so considerable a part of the history of diseases, are not acknowledged as *fevers* by some authors; and by others, of very great eminence, are refused the least right to the title of malignity. There is no end of similar instances of confusion in classes, and of contradictions in characters : but the most remarkable of them all, in my conception, is that in a system, which teaches, that all fevers originate in a few causes

ultimately reckoned *putrescent*, no place can be assigned, it is said, for *putrid* fevers.

From such a diversity of sentiments in theory, a reader, unacquainted with the practice of physic, would naturally expect an infinite variety in the methods of cure. On this point, however, it happens fortunately for the good of mankind, and the credit of the profession, that the notions of physicians, which in speculation are so much actuated by an eccentric and divergent force, acquire on a sudden, in the moment of action, a remarkable tendency towards uniting, as if under the influence of a common attractive power. For, excepting a few, like *Lobb* and *Clutton*, in this country, who, supposing all fevers to have but one principle, employed a particular method of their own, and adhered to it in all cases, practitioners generally apply their modes of assistance uniformly, and follow the same indications much in the same manner.

Is there, then, no connection between
theory

theory and practice? no use in studying systems which are generally formed for instruction?—Secondly, Is there no possibility of placing this subject in a point of view equally favourable to practice and theory?—I shall endeavour to answer these two questions. In the first place, when a physician composes a system, he naturally wishes to distinguish it from preceding ones by some appearance of novelty. Imagination is more successful in producing novelty than experience, and is, therefore, oftener applied to; but when health, when life, is in question, the importance of the trust does not permit him to follow any other guide than his judgment. Hence it may not be surprising, that the same person, being placed in two situations so different, should think differently. It is also to be considered, that *symptoms*, however various in number and degree, impress on the mind more distinct, more precise, and more lasting notions than *causes*; which, being always more obscure, and generally less important, lay not so great

a restraint on reasoning, leave a greater scope to the fancy, and, consequently, produce more fluctuating sentiments.—For these reasons, *theory* is not so nearly connected with *practice* as, for the improvement of the art, it could be wished ; and, therefore, systematic writers may be said to make an exception to the common maxim, “ that the best part of an author is in his writings.” At the same time it may be observed, that, besides the propriety (not to employ a stronger expression) of making one’s self acquainted with the prevailing opinions of those men, whose fortune it has been to ingross for a while the attention of candidates, to direct their thoughts, and, probably, to influence their practice, many advantages result from studying their works. The very motive which impels them to dedicate their leisure to contemplation, and to explore the mysterious origin of diseases, is commonly productive of some discovery serviceable to the art. In the same manner that *chymists*, in their researches after an universal remedy, have
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found out several which, properly administered, remove many disorders, and, collectively taken, are beneficial to all; the various modes of explaining fevers, which, separately considered, are insufficient, will, perhaps, one day, by their united assistance, enable us to extract from them a satisfactory solution. It is not improbable that we might, by this time, have been brought nearer this great point, had systematic writers followed the method of *navigators*; who, in the prosecution of arduous attempts, prudently avail themselves of the observations and errors of their predecessors, and, by this two-fold advantage, ascertain at length the true situation of their object, and the safest way to it. But the desire of distinction which, more or less, prevails among all ranks of men, seems to act with superior power on *physicians*: their wish of contributing to the advancement of the art is too often subordinate to the desire of increasing their own fame. This exclusive passion, which, it is to be hoped, never influences their private conduct, is

easily perceivable in their writings, and prevents their availing themselves, so much as they might, of what has been done by others. Hence the great difference of opinions, the intricacy of the subject, the difficult attainment of useful knowledge—in one word, the slow progress of the science.

With regard to the second question, viz. Is there no possibility of placing this subject in a point of view equally favourable to practice and theory, and thereby establishing a connection between both? —I cannot help thinking it not only possible, but even less difficult than might be supposed, from the great distance at which they have been hitherto kept. Many reasons incline me to believe, that *fever* is no *disease* in itself; that, in all cases, it is *symptomatic* of some affection; and that it never is *primary* or *essential*. Where the disturbance of functions points out the seat of the disorder, *fever* is unanimously called *symptomatic*; but if the part affected is not obvious to the senses,

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it is reckoned *essential*: whereas, it is more natural to think, that as in many cases fever is a symptom of a *particular* affection, it also is a symptom when the affection is *general*. *Fever* seems to be *Nature's common signal of distress*, which on most occasions she displays for relief, though very variously. Sometimes, unnecessarily alarmed, she expresses her fears in too forcible accents; sometimes, though dangerously situated, her voice is with difficulty heard, as if unable to raise it, or insensible of her danger. In some cases, she points out the seat and cause of her trouble; in others, so many places are attacked at once, that she thinks it useless to mention any particularly. At times, confiding in her own powers, she soon quells the disturbance she had occasioned, and, by repeated exertions, repels successive attacks; at others, impressed with a constant sense of danger, she either unremittingly signifies her situation, or allows herself but a few moments of rest. Sometimes also, as if under the various influence of hope, fear,

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and incessant anxiety, her signals are as irregular as her sensations, and keep her observers at a loss to understand her meaning.—In all cases and situations, *fever* seems to be only a signal, and, therefore, implies the necessity of inquiring further into causes and particulars. That nature should generally choose this mode of expressing her want of assistance, appears easily accountable from her manner of proceeding throughout her infinite productions, and from the principles on which the human conformation is established. In every work, either divine or human, there are some parts necessarily more essential than others, endowed with greater consequence, more materially concerned in the good order of the whole ;—these great wheels, on the good state of which the preservation of the machine depends, are also liable to experience some alteration from the derangement of the remotest parts of the system. On the free unimpeded functions of the heart and brains certainly depends the preservation of life, and of those

those pursuits for which alone life is desirable. But these two great leaders of the human economy depend also, for the maintenance of their state, on the sound, unimpaired conditions of their many respective subservient parts; and seldom, therefore, fail being apprised of their disorders, and endeavouring, by unusual exertion, to restore the general harmony. Had nature fixed upon less important functions for signifying her need of help, she might have been neglected; but by exciting frequent contractions in the heart, or affecting the mental faculties, she was certain of being attended to. Her reason for expressing herself in these two languages (if I may say so) instead of one, is equally wise and prudent:—by the first, she intimates the power and inclination of exerting herself; by the second, she indicates her inability to do much, and her want of immediate support.

If the derangement of any part of the body has the power of exciting, in the
heart,

heart, stronger and more frequent contractions, it follows, that the circulation is liable to frequent and various alterations, from a great number of causes: that the degree of this alteration depends on many circumstances, such as the structure of the part affected, its degree of irritability, that of the whole system, &c. &c.; that the time during which it may last depends entirely on the removal of the cause, which, in many cases, must be a matter of great uncertainty; that, therefore, the attempt of describing the effects of so many and so various causes, and of their several combinations, under the names of species, or the endeavour of explaining them, from small arteries being obstructed by viscid blood, or contracted by spasm, is extremely unpromising.—The idea of comparing *fevers* to *plants*, or of accounting for their multifiform appearances from any single circumstance that is supposed always to accompany them, is equally founded on speculation alone, and is open to so many objections and exceptions, that after con-

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suming several years in that sort of contemplation, the student, upon leaving his books, and coming to a sick bed, either finds his memory at a loss to refer the case to any recorded instance, or his judgment embarrassed in trying to understand it, from the confined principle which he has been taught to consider as the cause of every form of fever ; whereas, if instructed to look upon fever as a sign of some *particular* or *general* affection, and accustomed to take symptoms as his guide for discovering the efficient cause, every case will supply him with opportunities of applying his notions of *theory* to *practice*, and of deriving from the one some rules of conduct for the other.—Should the speciousness of accuracy, which the plan of botanic arrangement of fevers undoubtedly carries with it, render some people averse to rejecting it, they might reflect, as has been suggested before, that there is no foundation for such a similarity ; that the essential requisites of likeness are wanting in this comparison ; that it is a mere imagination, destitute of substance —

stance.—Botanists having collected eighteen or twenty thousand plants, from different parts of the globe, and observing in their size, in their frame, in their flowers and leaves, constant marks of similitude, or evident lines of distinction, naturally thought of facilitating the acquirement of that science, by dividing those numerous productions into classes, families, orders, &c. with a reference of every species to one or other of these heads.—In doing this, they proceeded upon a sure ground, and worked upon a certain, decided, positive subject, which, excepting very few varieties, may be said to be, at all times, constantly one and the same. But physicians, in endeavouring to distribute fevers in similar classes, labour under unsurmountable difficulties. If it is possible to establish two or three general classes, it is absolutely impracticable to subject species to any tolerable regularity. From age, sex, mind, body, habit, diet, circumstances, and accidents, they are, and ever must be, so different, and so numerous, that every case may be said to be

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be a new one, or, at least, to have, like every face, something belonging to it alone which distinguishes it from others. To enumerate these varieties, would not be less arduous than to describe the imperceptible marks by which every man is different from others :—the difference is soon perceived ; but would require a metaphysic language to admit of a particular description, because it often depends as much on the state of the mind as on muscular shape. Besides, to compare *qualities* always accidental, such as pain, cold, heat, thirst, weakness, delirium, &c. to *qualities* necessarily inherent in the subject, and inseparable from matter, as length, wideness, shape, &c. is a licence in logic unlikely to produce, in any system, that regularity which the author had in view, and by which others have been captivated.

On the other hand, the ingenuity exercised in endeavouring to make all forms of fevers originate in one or two causes, as human and marsh effluvia, besides that experience

perience clearly contradicts such a supposition, is equally inefficacious in directing instruction towards its only useful end. Reducing the number of causes, when the effects are infinite, is an unlikely means to produce attention to a number of circumstances on which success commonly depends. On the contrary, it confines the thoughts within a narrow circle, and prevents their extending themselves in a manner proportional to the boundless operations of nature. That *effluvia* from morbid bodies, impregnated clothes, and moist ground, are a prolific and powerful source of fevers, does not admit of a doubt; but it is equally certain, that fevers of this tribe are generally confined to people of a certain description, whose situation, in point of air, diet, exercise, cleanliness, and amusements, keeps them for a long while perfect strangers to the comforts of life. These fevers must, therefore, have a great similarity, as arising from one cause; they must spread rapidly, the communication being almost immediate; and their treatment must be
nearly

nearly uniform.—If any ingenious writer should think fit to see nothing like morbid matter in their causes, but in his public lectures should teach, that a noxious power, applied to the body, occasions a spasm in the capillaries, which spasm creates fevers : if he should prefer the expression of *noxious power* to that of *morbid matter*, and choose for an inlet into the constitution the pores of the skin, which, for the greatest part, are commonly covered, rather than the tubes leading to the lungs and stomach, which are always open ; and by those predilections in terms deny to vitiated fluids any share of action as a cause, or to muscular fibres the susceptibility of any material alteration in tone, but refer the whole mischief to a diminution of the energy of the brain ; the only answer to such particularities is, that the languages of civilised nations admit of various modes of expressing the same thing ; and that the difference of mental organisations lead to a simpler or more complicated mode of explanation for the same appearances. But should he suppose that some

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particles of these effluvia, being brought into great cities by currents of air, and remaining unchanged by distance, or uncorrected by a warmer atmosphere, are equally and exclusively productive of fevers; the same manner of answering will prove insufficient. One must necessarily wish for a further explanation of the following discordant phenomena, viz. how those morbid particles seldom operate, as they did at first, almost universally? Why, so far from having an uniform effect, they are productive of the most opposite symptoms, and require opposite methods of cure? How, being conveyed by the air, they preserve their malignant influence, contrary to the experiments that have been mentioned, and contrive to apply themselves to the skin, notwithstanding the interference of warm clothes, and escape being pumped in by respiration, the mechanism of which does not allow of any precautions? These and several other difficulties must require great exertions of ingenuity to be tolerably reconciled. Such a system, by excluding many remote causes,

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against which mankind have been accustomed to guard themselves, contradicts general experience: and, by referring every phenomenon to the same proximate cause, reduces the varieties of Nature's operations to a fancied regularity of which they are not susceptible. It leads from one speculation into another, requires the help of several suppositions to appear consistent, and, when all this is granted, does not bring us much nearer the point towards which all systems should be directed, I mean establishing a connection between theory and practice.

Since the practice in fevers does not, like their theories, occasion a great diversity of opinions, the most likely method of rendering theory useful, is, to deduce it from the modes of cure generally established. It is equally rational, in endeavouring to discover their individual nature, to proceed from what is known to what remains undecided. Both these premises induce us to consider *fever* as a symptom, which many causes occasion; and

to account for its several forms and circumstances from *variety* in causes, and *difference* in constitutions: towards the prosecution of this plan, and of the proofs of its being established on facts, it is already a great step that we know the art of producing *fever* by various methods, and that accidents have supplied us with several certain causes of its existence. *Baglivi* made a number of experiments on dogs, and other animals, by pouring into their veins, or mixing with their food, liquors of different qualities; and by those means excited fevers that differed in degree, duration, and event, according to the quality and dose of the mixture infused.—A thorn driven into a tendon, or a tooth piercing its way through the gums, will give rise to a fever, attended by the most alarming symptoms, with such an alteration in the fluids, as frequently to incline physicians to think them the cause of the disturbance before the seat is discovered.—A degree of exercise too violent for the strength of the muscles often produces an universal soreness, and a *fever* which is
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not always stopped by rest and refreshment.—The smallest drop of the variolic poison being inserted under the cuticle, excites, after a few days, a violent and dangerous fever, which does not abate till the greatest part of the humours, which it has assimilated to its own infectious nature, breaks out upon the surface of the body, and ceases to irritate and offend the more important viscera.—The cutting of a pen, accidentally received into the lungs of a child, occasioned, for more than a year afterwards, a fever, attended with fizy blood, and other marks of inflammation, which never left him till he luckily coughed up the irritating substance, upon which he immediately grew well. From these few facts we seem therefore authorised to assert, that the *fluids*, the *solids*, the *nerves*, and even the *mind*, are susceptible of various alterations that produce fever: and if, in a variety of cases, fever is proved to be symptomatic, what inducement is there to think it essential in a few? Is it not more consistent with the methods pursued in other sciences to judge
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of what we know not, from what we know ; and, reasoning from analogy, to presume that the same causes which, in most instances, are determined towards some particular parts, producing peripneumonies, pleurifies, &c. are sometimes carried through all the mazes of the circulation, occasioning inflammatory continued fevers ? that the same matter which, being fixed on the tonsils, brings on a malignant sore throat, when remaining universally spread, causes a putrid fever ? that, in the same manner that a solid substance irritates the nerves, incorporeal causes may affect the mind, which is their invisible principle ? and that, from the different modifications and combinations of these great causes, arise a multitude of species, too great for description ?—This manner of considering fevers, besides the reasons that induce me to think it the true one, is attended with several advantages ; it explains a number of anomalies ; reconciles different opinions ; at least derives some use from every one of them ; it connects *theory* with *practice*, simplifies, in

many respects, the method of study, and promises improvement in the methods of cure, by directing the mind towards investigating *causes*. — I cannot, in a few words, convey my meaning more intelligibly than by the following comparison : — The multitude of saline combinations with which *Nature* and *Art* abound, though too numerous for observation to ascertain, or for memory to comprehend, is, however, most probably the result of an only principle, more or less intimately united with other substances ; various, and infinite, as these combinations are in appearance and properties, they all contain more or less the pure *vitriolic acid*, which is the only substance essentially *saline* : in the same manner, the diseases which are accompanied with *fever* are innumerable, our powers are too much confined to mark their difference, ascertain their seat, or limit their varieties ; but through all its various forms, and different periods, *fever* seems to be unalterably one, and individually *symptomatic*.

P E R O-

P E R O R A T I O.

QUOD ad naturæ febris illustrationem, necnon ad theoriæ praxeosque conjunctionem, maxime pertinere judicavi, vobis jam, illustrissime præses, auditoresque ornatissimi, si non pro rei amplitudine, saltem pro viribus, exponere conatus sum: sine enim inter theoriam et praxin arctiori connectione nulla spes effulget artem medicam omnium nobilissimam et antiquissimam utiles progressus facere posse. Quantum febrium theoria hâctenus fluctuaverit, et cujusvis opinio protuentis ingenio, aut auctoritate valuerit, in animum vestrum revocare meum fuit propositum. Id tantum igitur superest, nempe ut, posthabitis magistrorum verbis, non scientiæ famam sed ipsam scientiam, ipsam veritatem, quæramus. Ad illam autem inveniendam, ab abditis, et ab intellectu remotis, ad principia quæ sensus evidentiam admittunt, confugiamus necesse est. Ea vero nihil aliud sunt quam experimenta et syllogismi geometricè concatenati. His innixum principiis decet investigatorem veri non solum quæ legerit, sed et quæ secum ipse meditando consideraverit, in communem fructum proferre.

